

GENERIC DRAFT

Fiscal Sustainability Plan
Wastewater Treatment Works
Small Town, Kansas
Dated Today, 201X
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FISCAL SUSTAINABILITY PLAN

For the Small Town, Kansas, Wastewater Collection and Treatment System

This plan outlines a Fiscal Sustainability Plan (FSP) for the City of Small Town, County of ~~Xxxxx~~, State of Kansas, as required by the Kansas Water Pollution Control Revolving Fund (KWPCRF) to provide a plan to develop an Asset Management Plan (AMP) and a financial plan to provide funds needed to pay for the ongoing operation, maintenance, repair, rehabilitation, and replacement expenses associated with the City's wastewater collection, pumping, and treatment system.

WHEREAS, the City of Small Town, Kansas, has constructed and is responsible to maintain the wastewater treatment works; and

WHEREAS, the City must pay all ongoing expenses associated with said treatment works and charge the users of said treatment works accordingly;

NOW, THEREFORE, BE IT AGREED:

1. The City will implement a performance measurement and management strategy as part of an ongoing effort to ensure high-quality and efficient use of existing facilities.
2. The city will make it a priority to be energy-efficient and use water efficiently in its provisions of public services.
3. The City will inspect and maintain existing wastewater collection and treatment systems. (See also the attached Operations & Maintenance Question and Answer Format attachment.)
4. The City will establish and maintain appropriate core resources to repair the existing wastewater collection system, pumping stations, and treatment system with the

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expectations:

- a. The wastewater treatment lagoon will need major repairs in 20 years, which will be financed by issuing debt for necessary improvements at that time;
 - b. The pump station will need replacement within 20 years (by no later than 20XX) with an expected 20 year replacement cycle thereafter at a current estimated cost (current year 20XX) of \$XX,000;
 - c. Manholes and sewer lines owned by the city will be inspected on an ongoing basis with a written summary of conditions and all defects and cost estimates of recommended rehabilitation measures, with inspection of a minimum 5% of the collection system each year on the average beginning in 20XX (current year). The entire collection system should therefore be inspected by 20XX (current year plus 20 years). The annual summaries of these inspections shall be made available to KDHE inspection staff;
 - d. Private service lines connecting to the sewer lines owned by the city are the responsibility of the property owner. The city will coordinate with individual property owners as and when needed.
 - e. The city will create a “rehabilitation and replacement” fund/account to receive and maintain annual payments of funds within the wastewater utility to allow the recommended rehabilitation measures as identified from the ongoing inspections to be repaired on an ongoing basis. This includes the sewage pumping station major maintenance and replacement, ongoing manhole and sewer line inspections, and rehabilitation/repairs to manholes, sewer lines, and the service line connection to the sewer lines owned by the city
5. The City will establish the appropriate cost-recovery target for its user charge fee to establish the appropriate reserves to fund on-going maintenance, repairs, and rehabilitation of the Small Town Wastewater Collection and Treatment systems. Informational documents are attached. The annual amount transferred into the “rehabilitation and replacement” fund/account shall initially be \$12,200 (amount is an

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example for this generic draft document), with the annual amount being increased or decreased as determined necessary by the annual review of needs and cost estimates and expenditures.

6. The City will consider competitive contracting services and equipment when appropriate and where clear cost-effective alternatives exist.
7. The City will review revenue performance annually. (See also the attached Appendix A and Appendix B attachments.)

This agreement shall be in full force and effect from and after its passage and approval.

Passed by the Council of the City of Small Town, Kansas, this XX day of XXXXXX, 201X.

Mayor

ATTEST:

City Clerk

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City of Small Town, Kansas, Lagoon, Pumping Station, and Gravity Sewer Operation, Maintenance, and Replacement Guidance Questions and Answer Format

1.A. Does the city have a Certified Operator to operate and maintain the wastewater system?

_____ Yes, certified operator on staff (provide name and level of certification)

_____ No, see 1.B. below.

1.B. Does the city have an Operator-In-Training (OIT) on staff learning to operate and maintain the wastewater system?

_____ Yes, Operator-In-Training on staff (provide name of OIT)

_____ If No, contact Vickie Jo Wessel of KDHE at vwessel@kdheks.gov, or by telephone at 785.296.2976

2.A. Does the city have adequate equipment to operate and maintain the lagoons, pumping station, and gravity collection system? (Check the list below to indicate the equipment the city owns.)

_____ Maintenance Vehicle (Provide year, make and model)

_____ Mowing Equipment (Provide year, make and model)

_____ Sewer Cleaning Machine (Provide type, year, make and model)

_____ Pump Station (if appl.) Tools, Spare Parts, Electrician or Electrical Support Services (List All) _____

_____ Smoke Testing Equipment

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_____ TV Inspection Equipment (Provide make and model) _____

_____ Other _____

- 2.B. If the city does not own adequate equipment for emergency cleaning and minor repairs of manholes and sewer lines, does the city have any Mutual Aid Agreements with other cities, or an “on call” contracts with private companies that provide these services?

_____ Yes, emergency cleaning is provided by a Mutual Aid Agreement(s) with (list all city names here) _____

_____ Yes, emergency cleaning is provided by “on call” contracts(s) with (list all company names and services here) _____

3. Does the city provide routine cleaning of sewer lines? (Indicate frequency and methods.)

Yes _____

No _____

If not, KDHE recommends the city budget annual funds to clean sewer lines on established schedules based on the type of materials of construction of the pipes. The city should locate every manhole in the system, and update the sewer system maps as the city-wide effort progresses. Vitrified Clay Pipe (VCP) is recommended to be cleaned a minimum of once every 3 years. PVC pipe is recommended to be cleaned a minimum of once every 7 years. In areas with a mix of VCP, “truss” pipe, CIP, DIP, and/or PVC pipe, cleaning is recommended a minimum of once every 5 years. Any “problem spots” in the piping system should be identified, recorded, and cleaned on a more frequent basis based on experience. Any sewer lines rehabilitated by sliplining with CIPP or interior plastic liners can be reduced to cleaning frequency of once every 7 years.

4. Does the city provide routine cleaning and inspection of manholes? (Indicate frequency and methods.)

Yes _____

No _____

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If not, KDHE recommends the city inspect and record the conditions of manholes concurrently with the efforts to clean sewer lines on the established schedules stated above. Vitrified Clay Pipe (VCP) sewers tend to have brick manholes, and so would be opened, inspected, and conditions recorded a minimum of once every 3 years. PVC pipe tends to have precast concrete manholes and so would be opened, inspected, and conditions recorded a minimum of once every 7 years. In areas with a mix of VCP, "truss", CIP, DIP, and/or PVC pipe, the manholes may also be a mix of brick and precast concrete, and conditions would be recorded a minimum of once every 5 years. Any "problem spots" in the system of manholes should be identified, recorded, and considered for rehabilitation when discovered.

5. Does the city routinely provide or contract for television inspection and record keeping of information as gathered after cleaning of sewer lines? (Indicate frequency and methods.)

Yes _____

No _____

If not, KDHE recommends the city inspect and record the conditions of the portion of the sewer lines that are accessible from the manhole concurrently with manhole inspections, concurrently with the efforts to clean sewer lines on the established schedules stated above. This information can then be reviewed by an experienced engineer or technician to provide recommendations for TV inspection of certain sewer lines. The TV inspection records would then be reviewed by an experienced engineer or technician to recommend sewer line and manhole repairs and/or rehabilitation. Any "problem spots" in the sewer system should also be rehabilitated with any larger project.

6. Does the city budget annually for manhole rehabilitation and/or sewer line rehabilitation or replacement? (Indicate annual budget amount for each.)

Yes _____

No _____

KDHE recommends the routine cleaning of sewer lines, manholes inspections and recording of defects, and TV inspections of selected sewer lines be provided funding with the annual budget process. Perhaps manhole rehabilitation can also be provided on an annual budget "cash flow" basis. If the system is in good condition and sewer line rehabilitation needs are relatively small, perhaps rehabilitation of sewer lines can also be provided on an annual budget "cash flow" basis.

KDHE recommends the sewer systems be cleaned, inspected, and defects recorded with rehabilitation or replacement as needed. The initial review inspections can be completed with a

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cleaning program for the entire sewer system of 3 to 7 years, as discussed above. For systems constructed of VCP pipe and brick manholes, an initial minimum inspection and rehabilitation effort to complete 5% of the system per year, on the average, is recommended. For systems constructed of PVC pipe (or pipes sliplined with CIPP or plastic pipe) and precast concrete manholes, a minimum inspection and rehabilitation effort to complete 2% of the system per year, on the average, is recommended. When budgeting to rehabilitate or replace sewer lines, a larger city-wide effort may be in order to be funded with debt financing.

7. Does the city have a program to detect and remove private sector sources of infiltration and inflow? (Please provide a brief description of practices and attach any applicable city ordinances.)

Yes _____

If not, KDHE recommends operator training and recommends the city establish ordinance as necessary to resolve defects in the privately-owned portion of the system.

The city is encouraged to provide additional information and summary here of recent (in the prior 15 years) rehabilitation and replacement investments in the collection, pumping, and treatment systems serving the city.

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APPENDIX "A" TO USER CHARGE ORDINANCE Actual Water Use Rate Structure

This appendix presents the methodology to be used in calculating user charge rates and illustrates the calculations followed in arriving at the first year's user charges. The charges established in this appendix are based on estimates of expenses and loadings. The actual expenses and loadings that occur may differ from these estimates and certainly they will change as time passes. Therefore, the user charges must be re-established whenever necessary to reflect actual expenses and loadings. Once the system is in use, the expenses and loadings can be determined from operating records and the user charges can be adjusted based on these figures.

1. Expenses: The total annual expenses associated with the treatment works are estimated as follows:

<u>Item</u>	<u>Annual Expense</u>
Billing and Collection	_____
Administrative	_____
Power	_____
Labor (including fringe benefits)	_____
Material Costs	_____
Replacement Costs (See Appendix B)	_____
(Debt Service)	_____
Other	_____
TOTAL ANNUAL BUDGET EXPENSE	_____

2. Loadings:
The initial hydraulic loading is estimated to be _____ gal/year.

(NOTE: For administrative ease, the annual hydraulic loading to the wastewater treatment plant used for billing may be assumed to be four times the winter quarter **water usage** for the municipality from both public and private water supplies. *(Do **not** use measured or estimated wastewater flows for this calculation.)* By using winter quarter water usage, residential users will not be charged for consumptive use of water during the summer months. The difference between actual total wastewater flow at the wastewater treatment plant and the actual total potable water used by users of the municipality is infiltration/inflow. By calculating a unit flow charge based on the total annual water usage and the total annual budget, the cost of transporting and treating infiltration/inflow is being distributed according to flow volume of the users. This approach is shown because of its ease of administration and because infiltration/inflow tends to be less significant in municipalities where flat rate structures are acceptable because of the collection system size, age of the collection system, and type of treatment generally employed in these municipalities.)

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3. Unit Cost:
The initial unit cost for flow in \$/gallons =
Total annual budget expense / total annual flow.

(NOTE: If debt service is to be addressed in this ordinance, it may be allocated in the same manner or it may be allocated in any other manner that the municipality desires.)

4. Establishment of User Classes:

User	Number of Users	Average Monthly Water Used per User	Total Annual Water Used	Cumulative Usage per Class
Residential Class Residential	XX	XXX	<u>XXX</u>	<u>XXX</u>
Light Commercial/ Institutional Filling Station Bank Drive In Bowling Alley Church	XX XX XX XX XX	XXX XXX XXX XXX XXX	XXX XXX XXX XXX <u>XXX</u>	XXX
Heavy Commercial Car Wash Restaurant Laundromat	XX XX XX	XXX XXX XXX	XXX XXX <u>XXX</u>	XXX
Heavy Institutional School	XX	XXX	<u>XXX</u>	<u>XXX</u>
TOTAL				<u>XXX</u>

(NOTE: The establishment of various user classes is dependent, of course, on the particular users discharging to the city's treatment works. The classes must be established such that the individual users within a single user class do not vary significantly in volume or strength of wastewater contributed to the treatment works.)

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5. Calculation of charges to users in each user class:

Monthly charge per user in a particular user class = $\frac{(\text{cumulative class usage}) (\text{unit cost})}{(12) (\text{number of users in class})}$

where: Monthly charge per user is in dollars

Cumulative class usage is in gallons from paragraph 4

Unit cost is in \$/gallon from paragraph 3

Number of users in class is from paragraph 4, and
12 is a conversion factor.

Actual user charges for each user class are to be inserted into the sewer user charge ordinance.

6. Actual calculations for each user class follow:
(To be provided by city staff or consultants)

Alternative – Simplified Flat Rate Structure

1. Determine Total Annual Budget Expense
2. Determine Total Number of Connections to System
3. Calculate Monthly User Charge per Connection:

Monthly flat rate user charge per customer connection =

$\frac{\text{Total annual budget expense}}{12}$ (from prior page) / (Number of Connections)

4. Actual Calculations for Flat Rate Billing Structure follow:
(To be provided by city staff or consultants)

Appendix B on the following 3 pages provides a calculation of the annual deposit into the Replacement Account to provide for rehabilitation and replacement of equipment, manholes, and sewer lines.

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This appendix contains a replacement schedule that was developed to determine the amount of revenue needed to fund the Replacement Account. The replacement schedule lists the equipment in the treatment works, the estimated dates when the equipment will have to be replaced, and the estimated cost of replacement (which must include an allowance for inflation) over the useful life of the treatment works. Also listed is the estimated cash flow that will occur in the Replacement Account. The replacement dates and costs shown are estimates; the actual replacement dates and costs could be significantly different from those shown. If the actual replacement expenses differ significantly from those listed in the replacement schedule, the funding of the Replacement Account should be adjusted accordingly.

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SAMPLE CALCULATION OF ANNUAL REPLACEMENT REVENUE TO BE COLLECTED

I. Today's Replacement Cost	<u>5 Years</u>	<u>10 Years</u>	<u>15 Years</u>	<u>20 Years</u>
Manhole & Sewer Line Insp. - \$1,000 per year; Total \$20,000				
Manhole & Sewer Line Rehab. - \$5,000 per year; Total \$100,000				
Repairs to Main Sewage Pump Station	5,000	5,000	5,000	
Repairs to Lagoon Erosion Protection		5,000		5,000
Sewage Pump Station Replacement				70,000
Annual Manhole and Sewer Line - \$6,000	\$5,000	\$10,000	\$5,000	\$75,000
II. Future Replacement Costs (Assumed 2% Inflation)	Cost at:			
Present Cost	<u>5 Years</u>	<u>10 Years</u>	<u>15 Years</u>	<u>20 Years</u>
(Interest Factor - F/P @ 2%)	(1.10)	(1.22)	(1.35)	(1.49)
\$5,000 (5-Year Equipment Cycle)	5,500	N/A	N/A	N/A
\$10,000 (10-Year Equipment Cycle)	N/A	12,200	N/A	N/A
\$5,000 (15-Year Equipment Cycle)	N/A	N/A	6,750	N/A
\$80,000 (20-Year Equipment Cycle)	N/A	N/A	N/A	111,750
Future Replacement Costs	5,500	12,200	6,750	111,750
III. How much is needed annually?				
\$6,000 per year; \$120,000 for Manhole and Sewer Rehab.				
Plus - Future Replacement Costs	5,500	12,200	6,750	111,750
Total Reimbursement Revenue for the 20 year period - \$136,200				
Annual amount required to Meets total Replacement Revenues Needs - \$12,200 (NOTE: Interest Earnings on cash balances are assumed to be zero.)				

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APPENDIX "B" TO USER CHARGE ORDINANCE Sample Replacement Schedule

Years from Treatment Works in Operation	Replacement Item	Replacement Account		
		Expenditure	Income	Balance
January 1, 2016			(Balance + Int.)	
1	Annual Manhole and Sewer Line Inspections	1,000	12,200	11,200
2	Annual Manhole and Sewer Line Inspections	1,000	12,200	17,400
	Annual Manhole and Sewer Line Rehabilitation	5,000	5,200 + Int.	
3	Annual Manhole and Sewer Line Inspections	1,000	12,200	23,600
	Annual Manhole and Sewer Line Rehabilitation	5,000	11,400 + Int.	
4	Annual Manhole and Sewer Line Inspections	1,000	12,200	29,800
	Annual Manhole and Sewer Line Rehabilitation	5,000	17,600 + Int.	
5	Annual Manhole and Sewer Line Inspections	1,000	12,200	30,500
	Annual Manhole and Sewer Line Rehabilitation	5,000	18,300 + Int.	
	Repairs to Main Sewage Pumping Station	5,500		
6	Annual Manhole and Sewer Line Inspections	1,000	12,200	36,700
	Annual Manhole and Sewer Line Rehabilitation	5,000	24,500 + Int.	
7	Annual Manhole and Sewer Line Inspections	1,000	12,200	42,900
	Annual Manhole and Sewer Line Rehabilitation	5,000	30,700 + Int.	
8	Annual Manhole and Sewer Line Inspections	1,000	12,200	49,100
	Annual Manhole and Sewer Line Rehabilitation	5,000	36,900 + Int.	
9	Annual Manhole and Sewer Line Inspections	1,000	12,200	55,300
	Annual Manhole and Sewer Line Rehabilitation	5,000	43,100 + Int.	
10	Annual Manhole and Sewer Line Inspections	1,000	12,200	49,300
	Annual Manhole and Sewer Line Rehabilitation	5,000	37,100 + Int.	
	Repairs to Main Sewage Pumping Station	6,100		
	Repairs to Lagoon Erosion Protection	6,100		
11	Annual Manhole and Sewer Line Inspections	1,000	12,200	55,500
	Annual Manhole and Sewer Line Rehabilitation	5,000	43,300 + Int.	
12	Annual Manhole and Sewer Line Inspections	1,000	12,200	61,700
	Annual Manhole and Sewer Line Rehabilitation	5,000	49,500 + Int.	
13	Annual Manhole and Sewer Line Inspections	1,000	12,200	67,900
	Annual Manhole and Sewer Line Rehabilitation	5,000	55,700 + Int.	
14	Annual Manhole and Sewer Line Inspections Annual	1,000	12,200	74,100
	Manhole and Sewer Line Rehabilitation	5,000	61,900 + Int.	
15	Annual Manhole and Sewer Line Inspections	1,000	12,200	73,550
	Annual Manhole and Sewer Line Rehabilitation	5,000		
	Repairs to Main Sewage Pumping Station	6,750	61,350 + Int.	
16	Annual Manhole and Sewer Line Inspections	1,000	12,200	79,750
	Annual Manhole and Sewer Line Rehabilitation	5,000	67,550 + Int.	
17	Annual Manhole and Sewer Line Inspections	1,000	12,200	92,150
	Annual Manhole and Sewer Line Rehabilitation	5,000	79,950 + Int.	
18	Annual Manhole and Sewer Line Inspections	1,000	12,200	98,350
	Annual Manhole and Sewer Line Rehabilitation	5,000	86,150 + Int.	
19	Annual Manhole and Sewer Line Inspections	1,000	12,200	104,550
	Annual Manhole and Sewer Line Rehabilitation	5,000	92,350 + Int.	
20	Annual Manhole and Sewer Line Rehabilitation	5,000	12,200	0
	Sewage Pump Station Replacement	104,300	(12,200)	
	Repairs to Lagoon Erosion Protection	7,450		